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sporogenesis agree in all essentials with those already described for the Ascomycetes (Faull, 'Contributions from the Cryptogamic Laboratory of Harvard University,' LXI., in which there is a complete bibliography). Details and further researches in this group, which heretofore has not been subjected to microtonic methods, will be described in a forthcoming paper.

J. HORACE FAULL.

UNIVERSITY OF TORONTO,
December 2, 1905.

INBREEDING, CROSS-BREEDING AND STERILITY IN DROSOPHILA.

A SERIES of breeding experiments with the common pomace-fly, *Drosophila ampelophila* Loew., conducted during the past five years principally by my pupils and still in progress, has yielded certain results which it is the purpose of this note to summarize. A fuller account will soon be published elsewhere. Those who have taken part in the work are Thomas Ordway, Austin H. Clark, F. W. Carpenter, S. O. Mast, W. M. Barrows and myself. The part of each will be indicated in the final publication. The more important conclusions reached may be stated thus:

1. Inbreeding probably reduces very slightly the productiveness of *Drosophila*, but the productiveness may be fully maintained under constant inbreeding (brother with sister) if selection is made from the more productive families.

2. In crosses of a race of low productiveness and frequent sterility (race A) with a race of high productiveness (B) it has been found that a female of race A does not have her fecundity increased by mating with a male of race B, and conversely, a female of race B does not have her fecundity diminished by a mating with a male of race A. Hence every male not actually sterile furnishes an abundance of functional spermatozoa.

3. The cross-breds produced by the mating, B female \times A male, are all of high productiveness.

4. The cross-breds produced by a mating A female \times B male are usually, but not always of high productiveness.

5. The children of both sorts of cross-breds (see 3 and 4) are some of high productiveness like race B, others of low productiveness like race A.

6. Low productiveness is inherited after the manner of a Mendelian recessive character in certain of the crosses made, skipping a generation and then reappearing. In other cases it has failed to reappear in generation F_2 , indicating its complete extinction by the cross. In a few cases it has failed to be dominated by high productiveness in generation F_1 . In such cases the female parent has always been of race A. Hence low productiveness (or sterility) of the female may be transmitted directly through the egg from mother to daughter, but only indirectly through the sperm, the character skipping a generation.

7. A cross between two races, one inbred for thirty or more generations and of low productiveness, the other inbred for less than ten generations and of high productiveness, produced offspring like the latter in productiveness, but not superior to it.

8. The same two races crossed after an additional year of inbreeding (about twenty generations) produced offspring superior to either pure race in productiveness.

9. Inbreeding does not affect the variability in number of teeth on the sexual-comb of the male.

10. This character is closely correlated with size.

W. E. CASTLE.

ZOOLOGICAL LABORATORY, HARVARD COLLEGE,
January 11, 1906.

CURRENT NOTES ON METEOROLOGY.

AUSTRALIAN DAILY WEATHER MAPS.

In 1904 the Public Schools Associations in New South Wales appealed to the Sydney *Daily Telegraph* to publish daily a weather map for Australia in order that the pupils in the schools might be given instruction in meteorology by means of the maps. The *Telegraph* thereupon applied to the Sydney Observatory for a daily chart, to be supplied not later than 2 P.M., in order that it might appear in the evening editions which reach the country in time for use in the schools the